Abstract

Acute myeloid leukemia (AML) the most common acute leukemia in adults is characterized by various cytogenetic and molecular abnormalities. However, the genetic etiology of the disease is not yet fully understood. MicroRNAs (miRNAs) are small single-stranded noncoding RNAs that are negative regulators of gene expression. miRNAs influence processes of proliferation, differentiation and apoptosis. Deregulation of miRNAs expression can contribute to human disease. Circulating miRNAs are emerging biomarkers in many diseases and cancers such as breast cancer, colorectal cancer and lung cancer. However, defining a plasma miRNA signature in AML that could serve as a biomarker for diagnosis has been conducted only once.

We studied miRNA expression in plasma of 8 AML patients in first detection of the disease and repeatedly after achieving remission using TaqMan miRNA microarray for 750 human miRNA.

The plasma expression level of 25 miRNA was down-regulated whilst that of 20 miRNA was up-regulated in the AML group at diagnosis when compared to healthy controls. The plasma expression level of 21 miRNA was down-regulated whilst that of 13 miRNA was up-regulated in the AML group in remission compared to healthy controls.

Keywords

acute myeloid leukemia (AML), biomarker, microRNA (miRNA), plasma, TaqMan Low Density Array (TLDA)